

S/N TBD  
Docket: CS02-096  
Group art unit : \_\_\_ TBD

Date September 12, 2003

To: Commissioner of Patents and Trademarks  
P.O. Box 1450 Alexandria, VA 22313-1450

Fr: William J. Stoffel Reg. No. 39,390 Cust No. 30402  
PMB 455  
1735 Market St - Suite A  
Philadelphia, PA 19103

Subject:

Serial No. TDB  
Docket cs02-096  
File Date: with application  
Inventor: Lin et al.

Title: Half Tone Alternating Phase Shift Masks  
Group art unit: TBD

**INFORMATION DISCLOSURE STATEMENT**

Enclosed is Form PTO A820 (also PTO-1449), Information Disclosure Citation and references.

**CERTIFICATE OF MAILING OR EXPRESS MAIL**

I hereby certify that this correspondence is being deposited with the United States Postal Service as express mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450, on September 13, 2003.

Signature/Date William J. Stoffel  
William J. Stoffel Reg. No. 39,390  
Customer number 30402

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The following Patents and/or Publication are submitted to  
comply with the duty to disclose under CFR 1.97-1.99 and 37  
CFR 1.56.

US 6,410,191B(Nistler et al.) that shows a single trench  
alternating PSM.

US 5,766,829(Cathey, Jr. et al.) shows a chromeless phase  
shift mask comprised of a pattern of parallel spaced phase  
shifters.

US 6,458,495B1(Tsai, et al.) shows a dual trench with  
undercut, alt-PSM.

US 6,355,399B1(Sajan et al.) shows a method for a dual  
damascene pattern comprising: exposing a one photoresist  
layers using a grey tone mask.

US 6,482,554(Matsunuma) shows a for a method for a dual  
damascene pattern comprising: exposing two photoresist layers  
using a grey (tri-tone) mask.

S. Vaidya, *Phase-Shifting Photomasks, Semiconductor*  
fabtech, Edition 1, Issued September 1994, S. Vaidya, AT&T

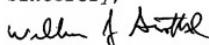
S/N TBD  
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Bell Laboratories, Murray Hill, New Jersey, USA, Website:  
<http://www.semiconductorfabtech.com/features/lithography/articles/body1.171.php3> , 5/7/03

John S. Petersen, et al., Development of a Sub-100nm Integrated Imaging System Using Chromeless Phase-Shifting Imaging with Very High NA KrF Exposure and Off-axis Illumination, found on website;  
<http://www.advlitho.com/content/Papers/SPIE microlith 02/4691-50 Petersen Conley et al.pdf> , May 8, 2003 , discusses Chromeless Phase shift mask techniques.

Gerold, et al., *Multiple Pitch Transmission and Phase Analysis of Six Types of Strong Phase-Shifting Masks*, This material was presented at SPIE's 26th Annual International Symposium on Microlithography as presentation number 4346-72 , found on website:  
<http://www.advlitho.com/content/Papers/4346-72paper.pdf> May 8, 2003. This reference discusses alternating phase shift masks.

S/N TBD  
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Armen Kroyan and Hua-yu Liu, Effects of altPSM Design on  
*Image Imbalance for 65 nm, Semiconductor International,*  
2/1/2003 [http://www.e-](http://www.e-insite.net/semiconductor/index.asp?layout=article&articleId=CA273367&spacedesc=webex)  
insite.net/semiconductor/index.asp?layout=article&articleId=CA  
273367&spacedesc=webex)

Sincerely,



William J. Stoffel  
Reg. No. 39,390  
Customer number 30,402

INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>				Docket Number (Optional) CS02-096	Application Number	
				Applicant(s) Lin et al.		
				Filing Date	Group Art Unit	
U.S. PATENT DOCUMENTS						
EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS
		US 6,410,191B1		Nistler et al.		
		US 5,766,829		Cathey, Jr. et al.		
		US 6,458,495B1		Tsai, et al.		
		US 6,355,399B1		Sajan et al.		
		6,482,554		Matsunuma		
FOREIGN PATENT DOCUMENTS						
REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation YES      NO
OTHER DOCUMENTS <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>						
	S. Vaidya, Phase-Shifting Photomasks, Semiconductor fabtech, Edition 1, Issued September 1994, S. Vaidya, AT&T Bell Laboratories, Murray Hill, New Jersey, USA, Website: <a href="http://www.semiconductorfabtech.com/features/lithography/articles/body1.171.php3">http://www.semiconductorfabtech.com/features/lithography/articles/body1.171.php3</a> , 5/7/03					
	John S. Petersen, et al., Development of a Sub-100nm Integrated Imaging System Using Chromeless Phase-Shifting Imaging with Very High NA KrF Exposure and Off-axis Illumination, found on website: <a href="http://www.advlitho.com/content/Papers/SPIE_microlith_02/4691-50_Petersen_Conley_et_al.pdf">http://www.advlitho.com/content/Papers/SPIE_microlith_02/4691-50_Petersen_Conley_et_al.pdf</a> , May 8, 2003 , discusses Chromeless Phase shift mask techniques.					
EXAMINER			DATE CONSIDERED			
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